

**WHAT IS CLAIMED IS:**

1. A resin-encapsulated semiconductor device, comprising:
  - a die pad provided by thinning a lower portion of a lead frame;
  - a semiconductor chip mounted on the die pad;
  - 5 a plurality of leads provided by thinning an upper portion of the lead frame;
  - a connection member for connecting the semiconductor chip and the lead with each other;
  - a plurality of suspension leads connected to the die pad; and
  - 10 an encapsulation resin for encapsulating therein the die pad, the semiconductor chip, the leads, the connection member and the suspension leads, with a bottom surface and an outer side surface of each lead being exposed as an external terminal, wherein:
    - an upper surface of the die pad is located higher than an upper surface of the lead; and
    - a lower surface of the die pad is located higher than a lower surface of the lead.
- 15 2. The resin-encapsulated semiconductor device of claim 1, wherein:
  - the semiconductor chip is mounted with its principal surface facing up; and
  - the connection member is a thin metal wire.
3. The resin-encapsulated semiconductor device of claim 1, wherein:
  - the semiconductor chip is mounted with its principal surface facing down; and
  - 20 the connection member is a bump made of a metal.
4. The resin-encapsulated semiconductor device of claim 1, wherein at least a portion of the semiconductor chip overlaps with the lead as viewed from above.
5. The resin-encapsulated semiconductor device of claim 1, wherein at least a portion of each of the die pad and the lead has a thickness of 100  $\mu\text{m}$  to 150  $\mu\text{m}$ .
- 25 6. A method for manufacturing a resin-encapsulated semiconductor device including a die pad, a semiconductor chip mounted on the die pad, a lead connected to the

semiconductor chip by a connection member, and a suspension lead, the method comprising the steps of:

(a) preparing a lead frame including the die pad, the lead and the suspension lead for supporting the die pad; and

5 (b) thinning a lower portion of the die pad and an upper portion of the lead so that an upper surface of the die pad is located higher than an upper surface of the lead, and a lower surface of the die pad is located higher than a lower surface of the lead.

7. The method for manufacturing a resin-encapsulated semiconductor device of claim 6, wherein the step (b) further includes a step (b2) of thinning at least a portion of the 10 suspension lead that is close to the die pad.

8. The method for manufacturing a resin-encapsulated semiconductor device of claim 6, wherein in the step (b), the lower portion of the die pad and the upper portion of the lead are thinned by a half etching process.

9. The method for manufacturing a resin-encapsulated semiconductor device of 15 claim 6, wherein in the step (b), at least a portion of each of the die pad and the lead whose thicknesses are both 200  $\mu\text{m}$  to 300  $\mu\text{m}$  is thinned so that the thicknesses of the die pad and the lead are both 100  $\mu\text{m}$  to 150  $\mu\text{m}$ .